



SPECIFICATION FOR APPROVAL

客戶名稱：

Customer：

國威

產品名稱：

型號規格：

Product Name：

ADAPTER

Model Spec:

MN-A002-A081

成品料号及说明：

P/N&Description: 91-031-1W57E1709/EU BK (7.5V/0.2A)ONLY230V

承認書編號：

版本：

Submit NO:

AN-100819

REV:

01

☐ Condition Approval

☐ Tested With System

☐ Final Approval

☒ Tested Without System

APPROVED BY:

核准	審核	經辦

DATE : 2010.08.25

承認 Approved	審核 Checked	確認 Designed	作成 Drawing

廈門瑪司特電子工業有限公司

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- If having questions in test, please contact Metrotec to measure together.

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REVISIONS HISTORY

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1. ELECTRICAL SPECIFICATIONS

1. Electrical:

1-1. Input Characteristics:

1-1-1. Rated Voltage

It is normal for 100Vac to 240Vac input AC voltage.

1-1-2. Input Voltage Range

The Adapter shall operate from 90Vac to 264Vac input AC voltage.

1-1-3. Rated Frequency

It is normal for 50Hz or 60Hz and single phase.

1-1-4. Frequency Range

The Adapter shall operate with an input frequency form 47Hz to 63Hz.

1-1-5. Steady AC Current

Maximum steady state input current is less than 0.2 Arms. Measured at 100Vac Input voltage.

1-1-6. Inrush Current

At Full Load ,25°C , Cold Start

115VAC,60Hz INPUT	No damage shall be occurred and the input fuse shall not be blown up.
230VAC,50Hz INPUT	

1-1-7. Minimum Average Efficiency In Active

64.7% min. measured at I/P:115Vac/60Hz or 230Vac/50Hz & Active Loading:25%/50%/75%/100% (Criteria: Level V)

1-1-8. No load power (Stand-by consumption)

The no load power is less than 0.3 W at 115Vac and 230Vac (Criteria: Level V)

1-2. Output Characteristics:

1-2-1. Rated Voltage

The rated output voltage is specified at 7.5 Vdc when the output is 0.2A.

1-2-2. Voltage Range

The output voltage will be performed at 7.5 Vdc $\pm 5\%$

1-2-3. Line Regulation

The output voltage is specified at $V_{out} \pm 1\%$.

1-2-4. Load Regulation

The output voltage is specified at $V_{out} \pm 5\%$.

1-2-5. Current

This Adapter can work from 0A to 200mA and output voltage is in section 2 specified range.

1-2-6. Rated Power

This Adapter capable to support 1.5 Watts continuously at all specified conditions.

1-2-7. Output Ripple and Noise

Ripple & noise \leq 300 mVp-p

Measured methods:

Performed by 20MHz bandwidth in oscilloscope. Applied 0.1uF ceramic capacitor and 10uF electrolytic capacitor across output connector terminal. Measured at the end of DC cable.

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1-2-8.Turn On Delay Time (Power On Time)

3 S maximum. Tested @ 100 Vac and 240 Vac input and 1.5 W full load at output

1-2-9.Hold Up Time

10 mS Min at Max Load 110Vac/60Hz (O/P Typic Voltage Drop Down 10%)

10 mS Min at Max Load 230Vac/50Hz (O/P Typic Voltage Drop Down 10%)

1-2-10.Rise Time

DC output rise time from 10% to 90% of output voltage shall be less than 30mS at nominal line and maximum load.

1-2-11.Surge load:(TBD)

The adapter shall support a surge load with 110% of maximum load for 1mS.

1-2-12.Load transient response

The power supply shall maintain output transient response time Within 10mS with a loading current change from 20% to 80% of maximum current and 0.5A/uS rise up / drow down test at end of output terminal.

1-2-13.Protection

a) Short Circuit protection

The Adapter is protected that a short happened between the output terminals and shall not result in a fire hazard, and will be normal operation automatically while the short is removed.

b) Over current protection

OCP point: 0.5A max.

c) Over voltage protection

The output shall be protected at over-voltage condition, maximum value can't be over 11.25V. That might be return to normal state by AC reset.

2. Environmental:

2-1.Temperature

2-1-1.Operating

The Adapter is capable to operate from 0 °C to 40°C.

2-1-2.Non- Operating

The Adapter is capable to be stored from -20°C to 70°C.

2-3.Humidity

2-3-1.Operating

The Adapter is capable to operate from 10 to 90% RH. (non condensing)

2-3-2.Non- Operating

The Adapter is capable to be stored from 5 to 95% RH. (non condensing)

2-4.Dieleltric Withstand Voltage (HI – POT)

The Adapter shall be applied 3000Vac for 60 seconds or 4242Vdc for 60 seconds between AC input terminals and output terminals. The cut off current is specified as 5mA.

2-5.Leakage Current

The measured reading is less than 250uA at 240 Vac, 50Hz.

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2-6. Insulation Resistance

Primary to secondary : > 50M ohm. 500VDC.

2-7. EMI Requirement

The adapter complies with : ☐ FCC Part 15 Class B ☒ EN55022 Class B ☐ VCCI Class B
☐ AS/NES 3548 Class B ☐ CNS13438 Class B ☐ ICES-003 Class B
☐ GB9254 Class B ☐ Other _____

2-8. EMS

ESD : \pm 8_KV air discharge, \pm 6_KV contact discharge

PLD (lightning surge EN61000-4-5):

(1) Common Mode ___KV (12 ohm) . Class I (line to earth , neutral to earth , line to neutral)

(2) Differential Mode 2_KV (2 ohm) . Class II (line to neutral)

2-9. Safety Conforming

Type	Standard	Meet	Approved	Type	Standard	Meet	Approved
<input type="checkbox"/> UL	UL60950-1	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/> CB	IEC60950-1	<input type="checkbox"/>	<input checked="" type="checkbox"/>
<input type="checkbox"/> Cul	CSA 22.2 No.60950	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> SAA	AS/NZS: 60950-1	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/> TUV-GS	EN60950-1	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> CCC	GB4943	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/> PSE	J60950-1	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/> CE	EN60950-1 EN60065	<input type="checkbox"/>	<input checked="" type="checkbox"/>
<input type="checkbox"/> BSMI	CNS 13436, CNS13438	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> KETI	K 60950-1	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/> TUV-GS	EN60065:2002+A1:2006	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> CB		<input type="checkbox"/>	<input type="checkbox"/>

2-10. MTBF

MTBF(Mean-Time-Between-Failures) Calculation

The calculated MTBF shall be 50,000 hours of continuous operation at 25°C, maximum load and normal voltage.

3. Mechanical:

3-1. Dimension

Body: 55mm (L) \times 36mm (W) \times 25.3mm (H) reference only.

3-2. Weight

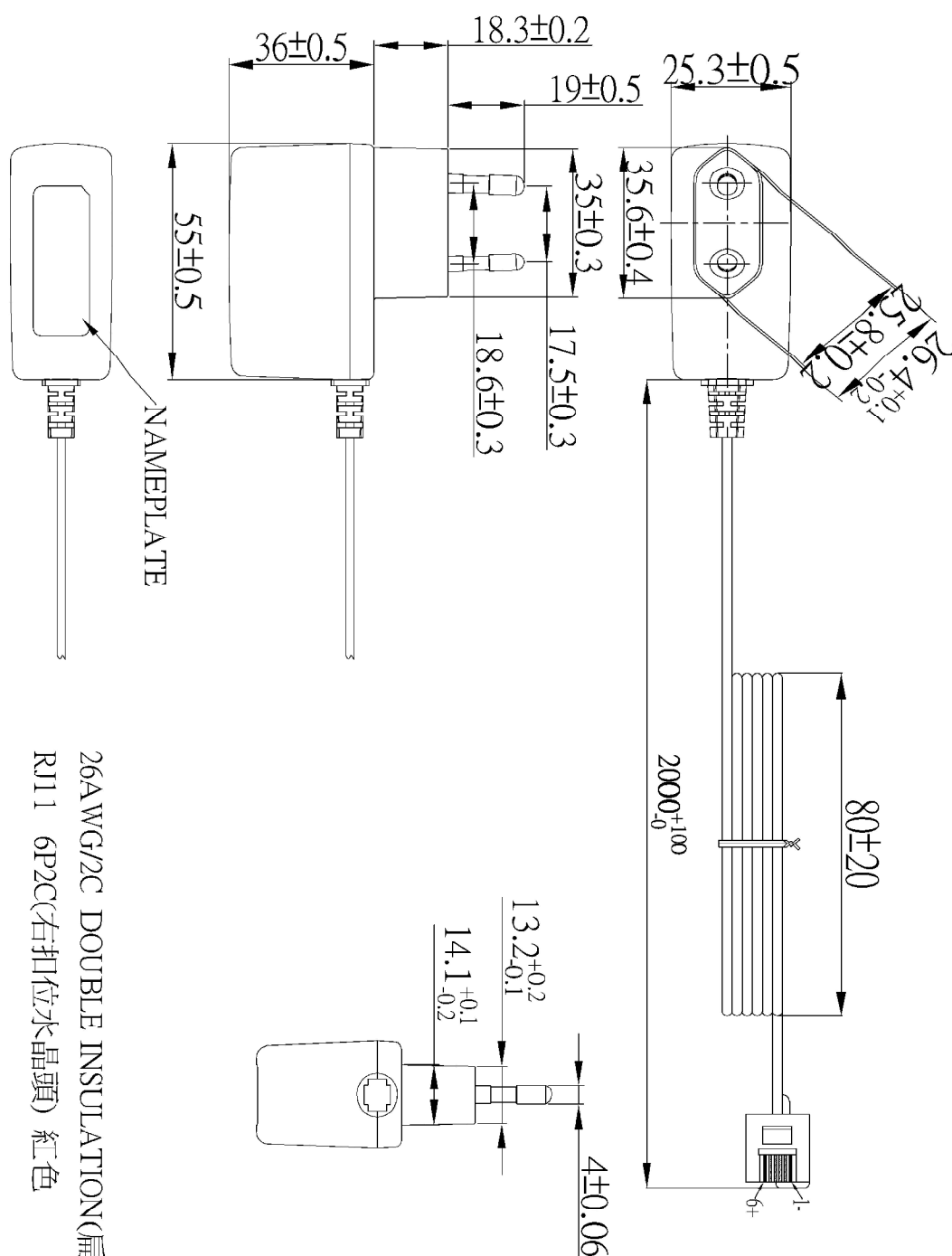
Net Weight (Approx): 65 g.

3-3. AC Plug

EN50075 two pole plug type.

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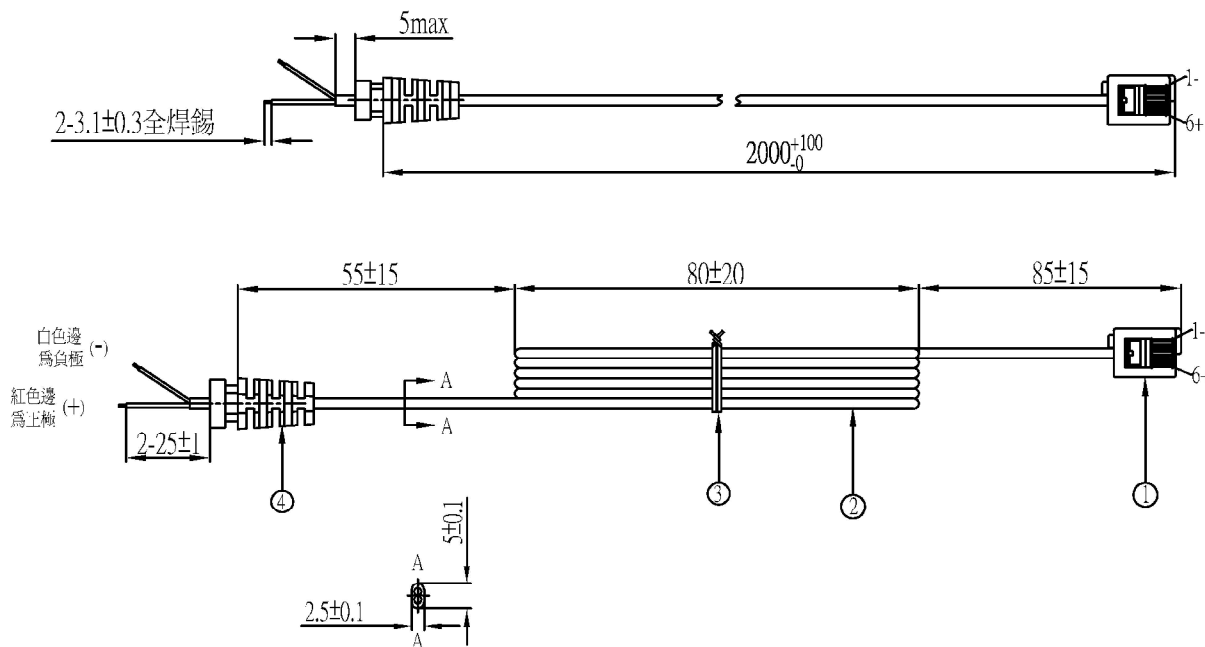
2. MECHANICAL DIMENSIONS



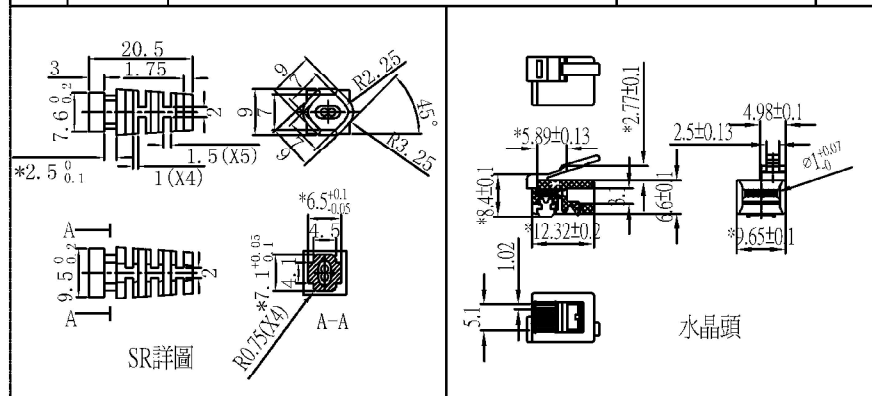
26AWG/2C DOUBLE INSULATION(扁線) BLACK
RJ11 6P2C(右扣位水晶頭) 紅色

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3. DC CORD



序號	名稱	規格	材質	數量
1	水晶頭	RJ11 6P2C(右扣位水晶頭) 紅色		1
2	线材	26AWG/2C BLACK(扁線) 線材外被不印字	PVC black	1
3	捆扎帶	黑色扎帶		1
4	SR	見SR詳圖	PVC 60P black	1



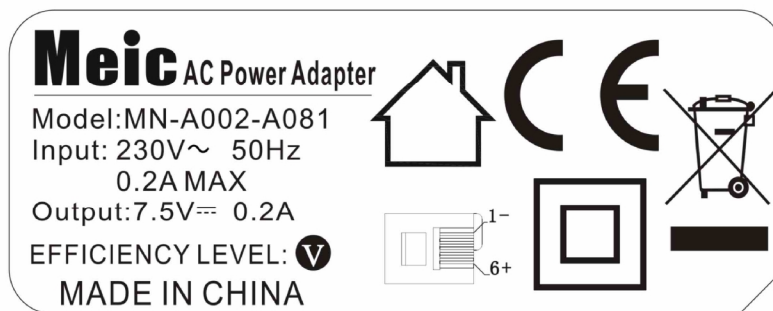
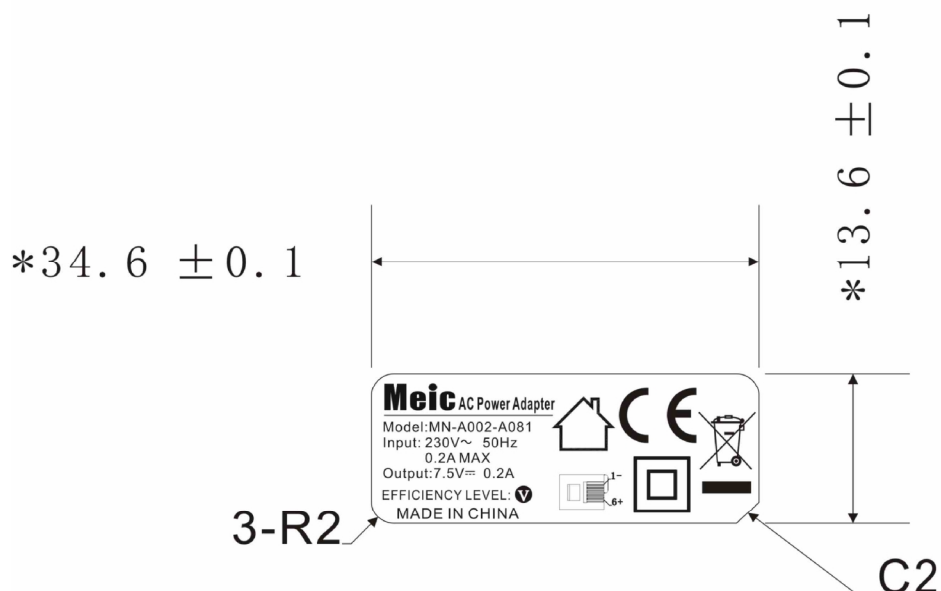
- 1.五金頭(金針)電鍍層 15U"鍍金。
- 2.不可有縮水,毛邊等不良。
- 3.此DC CORD搖擺測試請依"RD-33-05"標準執行。SR端拉力測試負重5Kg,維持5分鐘,水晶頭端拉力測試3Kg,維持1分鐘,不可有電性不良。
- 4.此Cord各部分需符合RoHS环境标准。

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4. NAMEPLATE

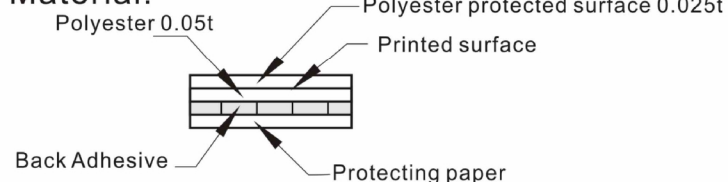
Note:

- 1.Printing:silver word with black background.
- 2.Material:POLYESTER FILM 0.05mm.
- 3.Mark '*' dimension must be checked by IQC.



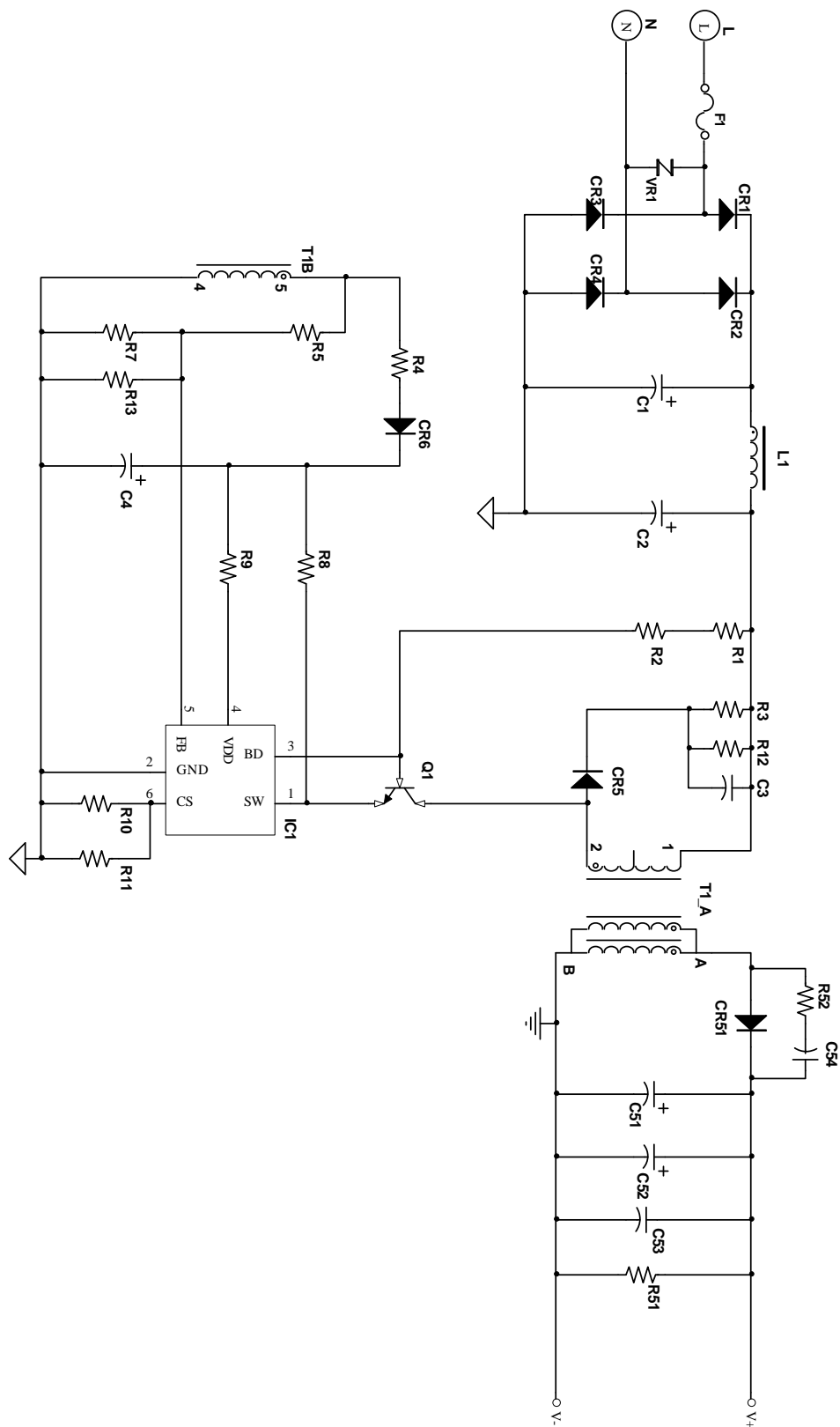
比例：2：1

Material:



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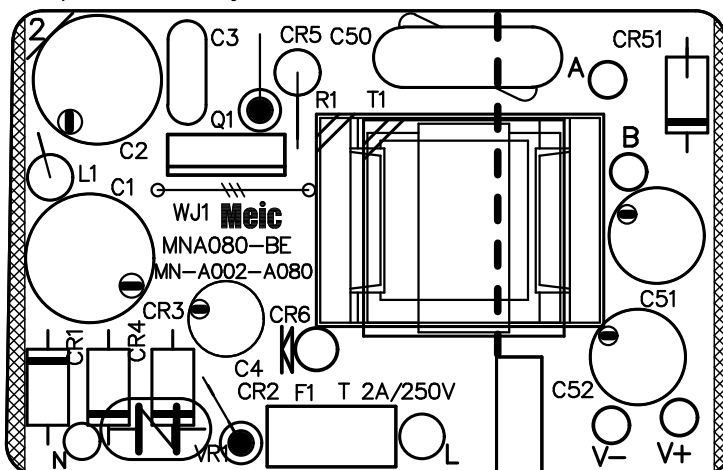
5. CIRCUIT SCHEMATIC DRAWING



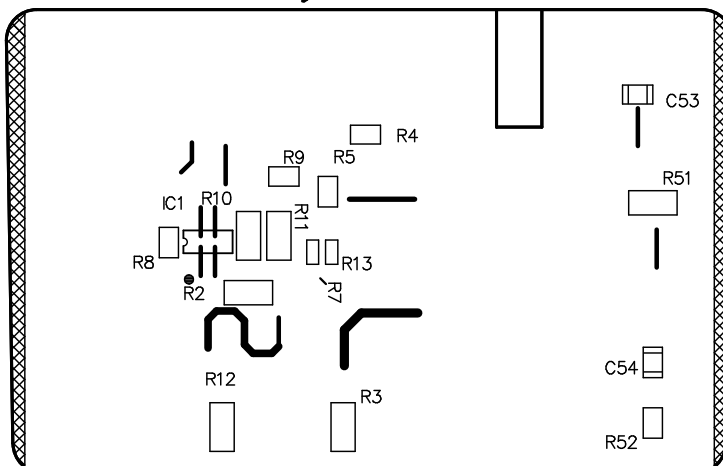
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6. PCB VIEW

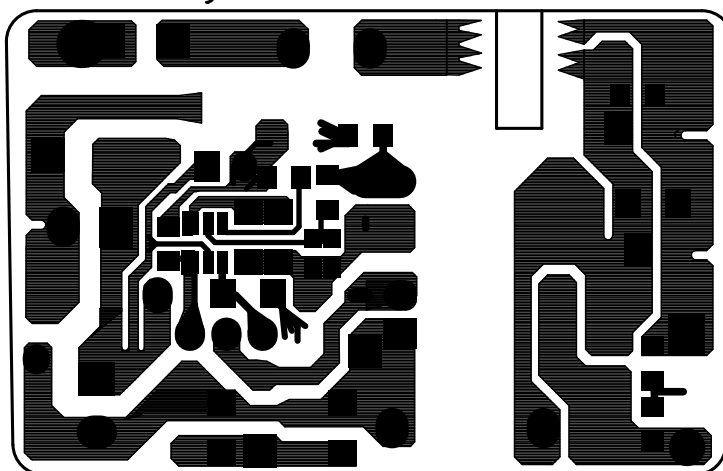
Top Overlay



Bottom Overlay

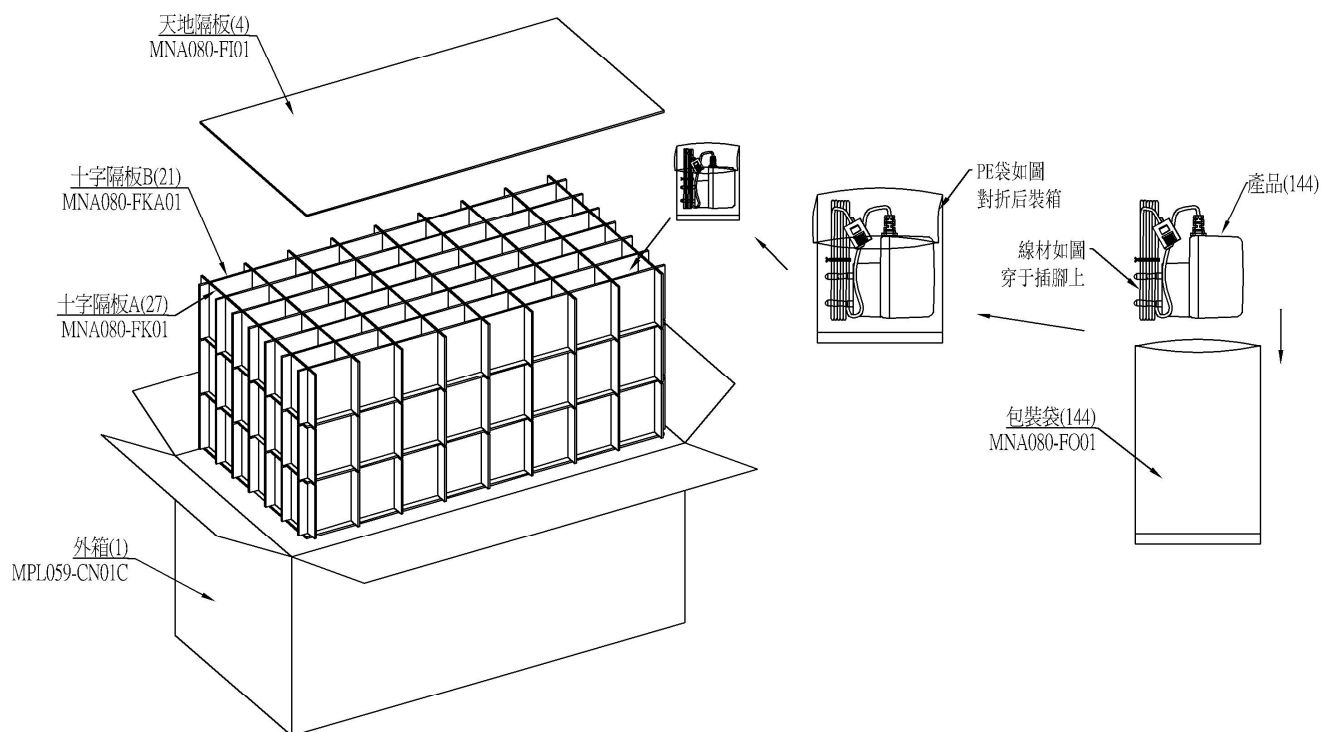


BottomLayer



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7. PACKING



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8. BOM

No.	Description Spec	Item	Symbol	Q'ty
1	CAP EC KM 2.2uF 400V 105°C M 8*12 PITCH=3.5 CAPXON		C1 C2	2
	CAP EC KM 2.2uF 400V 105°C M 8*12 PITCH=3.5 SAMXON			
	CAP EC CD288H 2.2uF 400V 105°C M 8*12 PITCH=3.5 RM			
	CAP EC TY 2.2uF 400V 105°C M 8*12 PITCH=3.5 LTEC			
2	CAP EC KM 4.7uF 50V 105°C M 5*11 PITCH=2.0 CAPXON		C4	1
	CAP EC KM 4.7uF 50V 105°C M 5*11 PITCH=2.0 SAMXON			
	CAP EC CD288H 4.7uF 50V 105°C M 5*11 PITCH=2.0 RM			
	CAP EC TY 4.7uF 50V 105°C M 5*11 PITCH=2.0 LTEC			
3	CAP CC 102K 1KV Y5P P=5.0mm POE		C3	1
	CAP CC 102K 1KV J Y5P P=5.0mm SEC			
	CAP CC 102K 1KV J Y5P P=5.0mm STE			
4	CAP EC LOW ESR 330uF 10V EGF 105°C M 6.3*11 P2.5mm SAMXON		C51	1
	CAP EC LOW ESR 330uF 10V KF 105°C M 6.3*11 P2.5mm CAPXON			
5	N.A		C52,C50	2
6	MLCC SMD 104K 50V 0805 X7R WALSIN		C53	1
	MLCC SMD 104K 50V 0805 X7R TDK			
	MLCC SMD 104K 50V 0805 X7R YAGEO			
7	MLCC SMD 102K 50V 0805 X7R WALSIN		C54	1
	MLCC SMD 102K 50V 0805 X7R TDK			
	MLCC SMD 102K 50V 0805 X7R YAGEO			
8	DIODE GENERAL 1000V 1A 1N4007 DO-41 PANJIT		CR1 CR2 CR3 CR4	4
	DIODE GENERAL 1000V 1A 1N4007 D0-41 LITE-ON			
	DIODE GENERAL 1000V 1A 1N4007 D0-41 LRC			
	DIODE GENERAL 1000V 1A 1N4007 D0-41 G.W			
9	DIODE FAST 1000V 1A FR107 D0-41 PANJIT		CR5	1
	DIODE FAST 1000V 1A FR107 D0-41 LRC			
	DIODE FAST 1000V 1A FR107 D0-41 TSC			
	DIODE FAST 1000V 1A FR107 D0-41 G.W			
10	DIODE FAST 200V 1A FR103 D0-41 TSC		CR6	1
	DIODE FAST 200V 1A FR103 D0-41 LRC			
	DIODE FAST 200V 1A FR103 D0-41 G.W			
	DIODE FAST 200V 1A PR1003 D0-41 LITE-ON			
11	DIODE SCHOTTKY 60V 1A SB160 DO-41 PANJIT		CR51	1
	DIODE SCHOTTKY 60V 1A SB160 DO-41 LRC			
	DIODE SCHOTTKY 60V 1A SB160 DO-41 LITE-ON			
	DIODE SCHOTTKY 60V 1A SB160 DO-41 TSC			
12	IC PWM SMD ACT361US-T SOT23-6 ACT		IC1	1
13	CHOKE FER LGA 2.2mH±10% KM		L1	1

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14	PCB MAIN MNA080-BE01 48*30.55 1.6T FR-1 1OZ 3-SUN		PB1	1
	PCB MAIN MNA080-BE01 48*30.55 1.6T FR-1 1OZ MILKY-WAY			
	PCB MAIN MNA080-BE01 48*30.55 1.6T FR-1 1OZ EXPLUS			
15	TR NPN 400V 1A hfe 20~30 MA123S TO-92 LITAI		Q1	1
	TR NPN 400V 1A hfe 20~30 HLB121A TO-92 HUAXI			
	TR NPN 400V 1A hfe 20~30TS13003CT TO-92 TSC			
	TR NPN 400V 1A hfe 20~30I3003CT TO-92 SINO			
	TR NPN 480V 1.5A hfe 10~40 MJE13003DI1 TO-92 BLUE ROCKET			
16	Fuse T2A 250V Holly		F1	1
	Fuse T2A 250V Walter			
17	VTR 07D471 ϕ 7mm 470V TKS		VR1	1
	VTR 07D471 ϕ 7mm 470V STE			
18	Resistor Dip 1/4W 2.2M Ω \pm 5% KM		R1	1
	Resistor Dip 1/4W 2.2M Ω \pm 5% TY-OHM			
19	Resistor SMD 1/4W 10M Ω \pm 5% 1206 YAGEO		R2	1
	Resistor SMD 1/4W 10M Ω \pm 5% 1206 WALSIN			
20	N.A		R3,R10	
21	Resistor SMD 1/8W 4.7 Ω \pm 1% 0805 YAGEO		R4	1
	Resistor SMD 1/8W 4.7 Ω \pm 1% 0805 WALSIN			
22	Resistor SMD 1/8W 56K Ω \pm 1% 0805 YAGEO		R5	1
	Resistor SMD 1/8W 56K Ω \pm 1% 0805 WALSIN			
23	Resistor SMD 1/10W 9.1K Ω \pm 1% 0603 YAGEO		R7	1
	Resistor SMD 1/10W 9.1K Ω \pm 1% 0603 WALSIN			
24	Resistor SMD 1/8W 160K Ω \pm 1% 0805 YAGEO		R8	1
	Resistor SMD 1/8W 160K Ω \pm 1% 0805 WALSIN			
25	Resistor SMD 1/8W 12 Ω \pm 1% 0805 YAGEO		R9	1
	Resistor SMD 1/8W 12 Ω \pm 1% 0805 WALSIN			
26	Resistor SMD 1/4W 1.4 Ω \pm 1% 1206 YAGEO		R11	1
	Resistor SMD 1/4W 1.4 Ω \pm 1% 1206 WALSIN			
27	Resistor SMD 1/4W 750K Ω \pm 1% 1206 YAGEO		R12	1
	Resistor SMD 1/4W 750 Ω \pm 1% 1206 WALSIN			
28	Resistor SMD 1/10W 130K Ω \pm 1% 0603 YAGEO		R13	1
	Resistor SMD 1/10W 130K Ω \pm 1% 0603 WALSIN			
29	Resistor SMD 1/4W 3.3K Ω \pm 1% 1206 YAGEO		R51	1
	Resistor SMD 1/4W 3.3K Ω \pm 1% 1206 WALSIN			
30	Resistor SMD 1/8W 10 Ω \pm 5% 0805 YAGEO		R52	1
	Resistor SMD 1/8W 10 Ω \pm 5% 0805 WALSIN			
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31	XFMR MAIN MS13ES EE13 3.2mH KINWEI		T1	1
	XFMR MAIN MS13ES EE13 3.2mH Flying Power			
	XFMR MAIN MS13ES EE13 3.2mH COST			
	XFMR MAIN MS13ES EE13 3.2mH K.M.			
	XFMR MAIN MS13ES EE13 3.2mH YAOSHENG			
	XFMR MAIN MS13ES EE13 3.2mH JIASHENGYUAN			
32	AC CABLE MPA067-EA02 UL3385 22AWG RED		EA1	1
33	AC CABLE MPA067A-EA02 UL3385 22AWG BLACK		EA2	1
34	ADHESIVE LOH063G GOLOHO		U1	1.6g
	ADHESIVE AP-688 AP			
35	NAMEPLATE MNA081-FBD01 L34.6*W13.6*T0.05 POLYESTER BLACK		FA1	1
36	JUMPER WIRE Φ 0.6*L7.5 Metortec		WJ1	1
37	TFL TUBE Φ 1.0*10mm Metortec		TU2	1
38	DC CABLE MAN081-EB03 26AWG		EB1	1
39	TOP CASE MT0004-CA L55*W25*H30 PC/ABS BK		CA1	1
40	BOTTOM CASE MT2004-CB L55*W25*H6 PC/ABS BK EU		CB1	1

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